

SEQUENCE LISTING

<110> C. Frank Bennett
Susan M. Freier

<120> ANTISENSE MODULATION OF SHIP-1 EXPRESSION

<130> RTS-0256

<160> 87

<210> 1

<211> 20

<212> DNA

<213> Artificial Sequence

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<223> Antisense Oligonucleotide

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<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 2

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<210> 3

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<212> DNA

<213> Homo sapiens

<220>

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<221> CDS

<222> (513) ... (4079)

<400> 3

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caccatgcc tgctaggcca tgcttcttca gaagtggcca caactctcct gacgtctcca 120

gagccgggtca ttccaccag ggggacttca gctgccactg gacacttcaa ttgtacgctg 180

cgaccagttg ccaggaagga gagggtggc aagaaagccg cggcagccgt ggcaggggtg 240

atgggacggt ggacggccag gggccccccc tctctctctt tctctctctc tctcttgctt 300

ggtttctgta atgaggaagt tctccgcagc tcagtttctt ttccctcact gagcgctga 360

aacaggaagt cagtcagtta agctgggtggc agcagccgag gccaccaaga ggcaacgggc 420

ggcaggttgc agtggagggg cctccgctcc cctcgggtgt gtgtgggtcc tgggggtgcc 480

tgccggccca gccgaggagg cccacgcccc cc atg gtc ccc tgc tgg aac cat 533

Met Val Pro Cys Trp Asn His

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ggc aac atc acc cgc tcc aag gcg gag gag ctg ctt tcc agg aca ggc 581

Gly Asn Ile Thr Arg Ser Lys Ala Glu Glu Leu Leu Ser Arg Thr Gly

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aag gac ggg agc ttc ctc gtg cgt gcc agc gag tcc atc tcc cgg gca 629

Lys Asp Gly Ser Phe Leu Val Arg Ala Ser Glu Ser Ile Ser Arg Ala

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tac gcg ctc tgc gtg ctg tat cgg aat tgc gtt tac act tac aga att 677

Tyr Ala Leu Cys Val Leu Tyr Arg Asn Cys Val Tyr Thr Tyr Arg Ile

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ctg ccc aat gaa gat gat aaa ttc act gtt cag gca tcc gaa ggc gtc 725

Leu Pro Asn Glu Asp Asp Lys Phe Thr Val Gln Ala Ser Glu Gly Val

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|---|-----|-----|-----|------|
| tcc atg agg ttc ttc acc aag ctg gac cag ctc atc gag ttt tac aag | | | | 773 |
| Ser Met Arg Phe Phe Thr Lys Leu Asp Gln Leu Ile Glu Phe Tyr Lys | | | | |
| | 75 | 80 | 85 | |
| aag gaa aac atg ggg ctg gtg acc cat ctg caa tac cct gtg ccg ctg | | | | 821 |
| Lys Glu Asn Met Gly Leu Val Thr His Leu Gln Tyr Pro Val Pro Leu | | | | |
| | 90 | 95 | 100 | |
| gag gaa gag gac aca ggc gac gac cct gag gag gac aca gaa agt gtc | | | | 869 |
| Glu Glu Glu Asp Thr Gly Asp Asp Pro Glu Glu Asp Thr Glu Ser Val | | | | |
| | 105 | 110 | 115 | |
| gtg tct cca ccc gag ctg ccc cca aga aac atc ccg ctg act gcc agc | | | | 917 |
| Val Ser Pro Pro Glu Leu Pro Pro Arg Asn Ile Pro Leu Thr Ala Ser | | | | |
| | 120 | 125 | 130 | 135 |
| tcc tgt gag gcc aag gag gtt cct ttt tca aac gag aat ccc cga gcg | | | | 965 |
| Ser Cys Glu Ala Lys Glu Val Pro Phe Ser Asn Glu Asn Pro Arg Ala | | | | |
| | 140 | 145 | 150 | |
| acc gag acc agc cgg ccg agc ctc tcc gag aca ttg ttc cag cga ctg | | | | 1013 |
| Thr Glu Thr Ser Arg Pro Ser Leu Ser Glu Thr Leu Phe Gln Arg Leu | | | | |
| | 155 | 160 | 165 | |
| caa agc atg gac acc agt ggg ctt cca gaa gag cat ctt aag gcc atc | | | | 1061 |
| Gln Ser Met Asp Thr Ser Gly Leu Pro Glu Glu His Leu Lys Ala Ile | | | | |
| | 170 | 175 | 180 | |
| caa gat tat tta agc act cag ctc gcc cag gac tct gaa ttt gtg aag | | | | 1109 |
| Gln Asp Tyr Leu Ser Thr Gln Leu Ala Gln Asp Ser Glu Phe Val Lys | | | | |
| | 185 | 190 | 195 | |
| aca ggg tcc agc agt ctt cct cac ctg aag aaa ctg acc aca ctg ctc | | | | 1157 |
| Thr Gly Ser Ser Ser Leu Pro His Leu Lys Lys Leu Thr Thr Leu Leu | | | | |
| | 200 | 205 | 210 | 215 |
| tgc aag gag ctc tat gga gaa gtc atc cgg acc ctc cca tcc ctg gag | | | | 1205 |
| Cys Lys Glu Leu Tyr Gly Glu Val Ile Arg Thr Leu Pro Ser Leu Glu | | | | |
| | 220 | 225 | 230 | |
| tct ctg cag agg tta ttt gac cag cag ctc tcc ccg ggc ctc cgt cca | | | | 1253 |
| Ser Leu Gln Arg Leu Phe Asp Gln Gln Leu Ser Pro Gly Leu Arg Pro | | | | |

| 235 | 240 | 245 | |
|---|-----|-----|------|
| cgt cct cag gtt cct ggt gag gcc aat ccc atc aac atg gtg tcc aag | | | 1301 |
| Arg Pro Gln Val Pro Gly Glu Ala Asn Pro Ile Asn Met Val Ser Lys | | | |
| 250 | 255 | 260 | |
| ctc agc caa ctg aca agc ctg ttg tca tcc att gaa gac aag gtc aag | | | 1349 |
| Leu Ser Gln Leu Thr Ser Leu Leu Ser Ser Ile Glu Asp Lys Val Lys | | | |
| 265 | 270 | 275 | |
| gcc ttg ctg cac gag ggt cct gag tct ccg cac cgg ccc tcc ctt atc | | | 1397 |
| Ala Leu Leu His Glu Gly Pro Glu Ser Pro His Arg Pro Ser Leu Ile | | | |
| 280 | 285 | 290 | 295 |
| cct cca gtc acc ttt gag gtg aag gca gag tct ctg ggg att cct cag | | | 1445 |
| Pro Pro Val Thr Phe Glu Val Lys Ala Glu Ser Leu Gly Ile Pro Gln | | | |
| 300 | 305 | 310 | |
| aaa atg cag ctc aaa gtc gac gtt gag tct ggg aaa ctg atc att aag | | | 1493 |
| Lys Met Gln Leu Lys Val Asp Val Glu Ser Gly Lys Leu Ile Ile Lys | | | |
| 315 | 320 | 325 | |
| aag tcc aag gat ggt tct gag gac aag ttc tac agc cac aag aaa atc | | | 1541 |
| Lys Ser Lys Asp Gly Ser Glu Asp Lys Phe Tyr Ser His Lys Lys Ile | | | |
| 330 | 335 | 340 | |
| ctg cag ctc att aag tca cag aaa ttt ctg aat aag ttg gtg atc ttg | | | 1589 |
| Leu Gln Leu Ile Lys Ser Gln Lys Phe Leu Asn Lys Leu Val Ile Leu | | | |
| 345 | 350 | 355 | |
| gtg gaa aca gag aag gag aag atc ctg cgg aag gaa tat gtt ttt gct | | | 1637 |
| Val Glu Thr Glu Lys Glu Lys Ile Leu Arg Lys Glu Tyr Val Phe Ala | | | |
| 360 | 365 | 370 | 375 |
| gac tcc aaa aag aga gaa ggc ttc tgc cag ctc ctg cag cag atg aag | | | 1685 |
| Asp Ser Lys Lys Arg Glu Gly Phe Cys Gln Leu Leu Gln Gln Met Lys | | | |
| 380 | 385 | 390 | |
| aac aag cac tca gag cag ccg gag ccc gac atg atc acc atc ttc atc | | | 1733 |
| Asn Lys His Ser Glu Gln Pro Glu Pro Asp Met Ile Thr Ile Phe Ile | | | |
| 395 | 400 | 405 | |
| ggc acc tgg aac atg ggt aac gcc ccc cct ccc aag aag atc acg tcc | | | 1781 |
| Gly Thr Trp Asn Met Gly Asn Ala Pro Pro Pro Lys Lys Ile Thr Ser | | | |

| 410 | 415 | 420 | |
|---|-----|-----|------|
| tgg ttt ctc tcc aag ggg cag gga aag acg cgg gac gac tct gcg gac | | | 1829 |
| Trp Phe Leu Ser Lys Gly Gln Gly Lys Thr Arg Asp Asp Ser Ala Asp | | | |
| 425 | 430 | 435 | |
| tac atc ccc cat gac att tac gtg atc ggc acc caa gag gac ccc ctg | | | 1877 |
| Tyr Ile Pro His Asp Ile Tyr Val Ile Gly Thr Gln Glu Asp Pro Leu | | | |
| 440 | 445 | 450 | 455 |
| agt gag aag gag tgg ctg gag atc ctc aaa cac tcc ctg caa gaa atc | | | 1925 |
| Ser Glu Lys Glu Trp Leu Glu Ile Leu Lys His Ser Leu Gln Glu Ile | | | |
| | 460 | 465 | 470 |
| acc agt gtg act ttt aaa aca gtc gcc atc cac acg ctc tgg aac atc | | | 1973 |
| Thr Ser Val Thr Phe Lys Thr Val Ala Ile His Thr Leu Trp Asn Ile | | | |
| | 475 | 480 | 485 |
| cgc atc gtg gtg ctg gcc aag cct gag cac gag aac cgg atc agc cac | | | 2021 |
| Arg Ile Val Val Leu Ala Lys Pro Glu His Glu Asn Arg Ile Ser His | | | |
| | 490 | 495 | 500 |
| atc tgt act gac aac gtg aag aca ggc att gca aac aca ctg ggg aac | | | 2069 |
| Ile Cys Thr Asp Asn Val Lys Thr Gly Ile Ala Asn Thr Leu Gly Asn | | | |
| | 505 | 510 | 515 |
| aag gga gcc gtg ggg gtg tcg ttc atg ttc aat gga acc tcc tta ggg | | | 2117 |
| Lys Gly Ala Val Gly Val Ser Phe Met Phe Asn Gly Thr Ser Leu Gly | | | |
| 520 | 525 | 530 | 535 |
| ttc gtc aac agc cac ttg act tca gga agt gaa aag aaa ctc agg cga | | | 2165 |
| Phe Val Asn Ser His Leu Thr Ser Gly Ser Glu Lys Lys Leu Arg Arg | | | |
| | 540 | 545 | 550 |
| aac caa aac tat atg aac att ctc cgg ttc ctg gcc ctg ggc gac aag | | | 2213 |
| Asn Gln Asn Tyr Met Asn Ile Leu Arg Phe Leu Ala Leu Gly Asp Lys | | | |
| | 555 | 560 | 565 |
| aag ctg agt ccc ttt aac atc act cac cgc ttc acg cac ctc ttc tgg | | | 2261 |
| Lys Leu Ser Pro Phe Asn Ile Thr His Arg Phe Thr His Leu Phe Trp | | | |
| | 570 | 575 | 580 |
| ttt ggg gat ctt aac tac cgt gtg gat ctg cct acc tgg gag gca gaa | | | 2309 |
| Phe Gly Asp Leu Asn Tyr Arg Val Asp Leu Pro Thr Trp Glu Ala Glu | | | |

| 585 | 590 | 595 | |
|---|-----|-----|------|
| acc atc atc caa aaa atc aag cag cag cag tac gca gac ctc ctg tcc | | | 2357 |
| Thr Ile Ile Gln Lys Ile Lys Gln Gln Gln Tyr Ala Asp Leu Leu Ser | | | |
| 600 | 605 | 610 | 615 |
| cac gac cag ctg ctc aca gag agg agg gag cag aag gtc ttc cta cac | | | 2405 |
| His Asp Gln Leu Leu Thr Glu Arg Arg Glu Gln Lys Val Phe Leu His | | | |
| | 620 | 625 | 630 |
| ttc gag gag gaa gaa atc acg ttt gcc cca acc tac cgt ttt gag aga | | | 2453 |
| Phe Glu Glu Glu Glu Ile Thr Phe Ala Pro Thr Tyr Arg Phe Glu Arg | | | |
| | 635 | 640 | 645 |
| ctg act cgg gac aaa tac gcc tac acc aag cag aaa gcg aca ggg atg | | | 2501 |
| Leu Thr Arg Asp Lys Tyr Ala Tyr Thr Lys Gln Lys Ala Thr Gly Met | | | |
| | 650 | 655 | 660 |
| aag tac aac ttg cct tcc tgg tgt gac cga gtc ctc tgg aag tct tat | | | 2549 |
| Lys Tyr Asn Leu Pro Ser Trp Cys Asp Arg Val Leu Trp Lys Ser Tyr | | | |
| | 665 | 670 | 675 |
| ccc ctg gtg cac gtg gtg tgt cag tct tat gcc agt acc agc gac atc | | | 2597 |
| Pro Leu Val His Val Val Cys Gln Ser Tyr Gly Ser Thr Ser Asp Ile | | | |
| 680 | 685 | 690 | 695 |
| atg acg agt gac cac agc cct gtc ttt gcc aca ttt gag gca gga gtc | | | 2645 |
| Met Thr Ser Asp His Ser Pro Val Phe Ala Thr Phe Glu Ala Gly Val | | | |
| | 700 | 705 | 710 |
| act tcc cag ttt gtc tcc aag aac ggt ccc ggg act gtt gac agc caa | | | 2693 |
| Thr Ser Gln Phe Val Ser Lys Asn Gly Pro Gly Thr Val Asp Ser Gln | | | |
| | 715 | 720 | 725 |
| gga cag att gag ttt ctc agg tgc tat gcc aca ttg aag acc aag tcc | | | 2741 |
| Gly Gln Ile Glu Phe Leu Arg Cys Tyr Ala Thr Leu Lys Thr Lys Ser | | | |
| | 730 | 735 | 740 |
| cag acc aaa ttc tac ctg gag ttc cac tcg agc tgc ttg gag agt ttt | | | 2789 |
| Gln Thr Lys Phe Tyr Leu Glu Phe His Ser Ser Cys Leu Glu Ser Phe | | | |
| | 745 | 750 | 755 |
| gtc aag agt cag gaa gga gaa aat gaa gaa gga agt gag ggg gag ctg | | | 2837 |
| Val Lys Ser Gln Glu Gly Glu Asn Glu Glu Gly Ser Glu Gly Glu Leu | | | |

| 760 | 765 | 770 | 775 | |
|---|-----|-----|-----|------|
| gtg gtg aag ttt ggt gag act ctt cca aag ctg aag ccc att atc tct | | | | 2885 |
| Val Val Lys Phe Gly Glu Thr Leu Pro Lys Leu Lys Pro Ile Ile Ser | | | | |
| | 780 | 785 | 790 | |
| gac cct gag tac ctg cta gac cag cac atc ctc atc agc atc aag tcc | | | | 2933 |
| Asp Pro Glu Tyr Leu Leu Asp Gln His Ile Leu Ile Ser Ile Lys Ser | | | | |
| | 795 | 800 | 805 | |
| tct gac agc gac gaa tcc tat ggc gag ggc tgc att gcc ctt cgg tta | | | | 2981 |
| Ser Asp Ser Asp Glu Ser Tyr Gly Glu Gly Cys Ile Ala Leu Arg Leu | | | | |
| | 810 | 815 | 820 | |
| gag gcc aca gaa acg cag ctg ccc atc tac acg cct ctc acc cac cat | | | | 3029 |
| Glu Ala Thr Glu Thr Gln Leu Pro Ile Tyr Thr Pro Leu Thr His His | | | | |
| | 825 | 830 | 835 | |
| ggg gag ttg aca ggc cac ttc cag ggg gag atc aag ctg cag acc tct | | | | 3077 |
| Gly Glu Leu Thr Gly His Phe Gln Gly Glu Ile Lys Leu Gln Thr Ser | | | | |
| | 840 | 845 | 850 | 855 |
| cag ggc aag acg agg gag aag ctc tat gac ttt gtg aag acg gag cgt | | | | 3125 |
| Gln Gly Lys Thr Arg Glu Lys Leu Tyr Asp Phe Val Lys Thr Glu Arg | | | | |
| | 860 | 865 | 870 | |
| gat gaa tcc agt ggg cca aag acc ctg aag agc ctc acc agc cac gac | | | | 3173 |
| Asp Glu Ser Ser Gly Pro Lys Thr Leu Lys Ser Leu Thr Ser His Asp | | | | |
| | 875 | 880 | 885 | |
| ccc atg aag cag tgg gaa gtc act agc agg gcc cct ccg tgc agt ggc | | | | 3221 |
| Pro Met Lys Gln Trp Glu Val Thr Ser Arg Ala Pro Pro Cys Ser Gly | | | | |
| | 890 | 895 | 900 | |
| tcc agc atc act gaa atc atc aac ccc aac tac atg gga gtg ggg ccc | | | | 3269 |
| Ser Ser Ile Thr Glu Ile Ile Asn Pro Asn Tyr Met Gly Val Gly Pro | | | | |
| | 905 | 910 | 915 | |
| ttt ggg cca cca atg ccc ctg cac gtg aag cag acc ttg tcc cct gac | | | | 3317 |
| Phe Gly Pro Pro Met Pro Leu His Val Lys Gln Thr Leu Ser Pro Asp | | | | |
| | 920 | 925 | 930 | 935 |
| cag cag ccc aca gcc tgg agc tac gac cag ccg ccc aag gac tcc ccg | | | | 3365 |
| Gln Gln Pro Thr Ala Trp Ser Tyr Asp Gln Pro Pro Lys Asp Ser Pro | | | | |

| 940 | 945 | 950 | |
|---|------|------|------|
| ctg ggg ccc tgc agg gga gaa agt cct ccg aca cct ccc ggc cag ccg | | | 3413 |
| Leu Gly Pro Cys Arg Gly Glu Ser Pro Pro Thr Pro Pro Gly Gln Pro | | | |
| 955 | 960 | 965 | |
| ccc ata tca ccc aag aag ttt tta ccc tca aca gca aac cgg ggt ctc | | | 3461 |
| Pro Ile Ser Pro Lys Lys Phe Leu Pro Ser Thr Ala Asn Arg Gly Leu | | | |
| 970 | 975 | 980 | |
| cct ccc agg aca cag gag tca agg ccc agt gac ctg ggg aag aac gca | | | 3509 |
| Pro Pro Arg Thr Gln Glu Ser Arg Pro Ser Asp Leu Gly Lys Asn Ala | | | |
| 985 | 990 | 995 | |
| ggg gac acg ctg cct cag gag gac ctg ccg ctg acg aag ccc gag atg | | | 3557 |
| Gly Asp Thr Leu Pro Gln Glu Asp Leu Pro Leu Thr Lys Pro Glu Met | | | |
| 1000 | 1005 | 1010 | 1015 |
| ttt gag aac ccc ctg tat ggg tcc ctg agt tcc ttc cct aag cct gct | | | 3605 |
| Phe Glu Asn Pro Leu Tyr Gly Ser Leu Ser Ser Phe Pro Lys Pro Ala | | | |
| 1020 | 1025 | 1030 | |
| ccc agg aag gac cag gaa tcc ccc aaa atg ccg cgg aag gaa ccc ccg | | | 3653 |
| Pro Arg Lys Asp Gln Glu Ser Pro Lys Met Pro Arg Lys Glu Pro Pro | | | |
| 1035 | 1040 | 1045 | |
| ccc tgc ccg gaa ccc ggc atc ttg tgc ccc agc atc gtg ctc acc aaa | | | 3701 |
| Pro Cys Pro Glu Pro Gly Ile Leu Ser Pro Ser Ile Val Leu Thr Lys | | | |
| 1050 | 1055 | 1060 | |
| gcc cag gag gct gat cgc ggc gag ggg ccc ggc aag cag gtg ccc gcg | | | 3749 |
| Ala Gln Glu Ala Asp Arg Gly Glu Gly Pro Gly Lys Gln Val Pro Ala | | | |
| 1065 | 1070 | 1075 | |
| ccc cgg ctg cgc tcc ttc acg tgc tca tcc tct gcc gag ggc agg gcg | | | 3797 |
| Pro Arg Leu Arg Ser Phe Thr Cys Ser Ser Ser Ala Glu Gly Arg Ala | | | |
| 1080 | 1085 | 1090 | 1095 |
| gcc ggc ggg gac aag agc caa ggg aag ccc aag acc ccg gtc agc tcc | | | 3845 |
| Ala Gly Gly Asp Lys Ser Gln Gly Lys Pro Lys Thr Pro Val Ser Ser | | | |
| 1100 | 1105 | 1110 | |
| cag gcc ccg gtg ccg gcc aag agg ccc atc aag cct tcc aga tcg gaa | | | 3893 |
| Gln Ala Pro Val Pro Ala Lys Arg Pro Ile Lys Pro Ser Arg Ser Glu | | | |

| 1115 | 1120 | 1125 | |
|--|------|------|------|
| atc aac cag cag acc ccg ccc acc ccg acg ccg cgg ccg ccg ctg cca | | | 3941 |
| Ile Asn Gln Gln Thr Pro Pro Thr Pro Thr Pro Arg Pro Pro Leu Pro | | | |
| 1130 | 1135 | 1140 | |
| gtc aag agc ccg gcg gtg ctg cac ctc cag cac tcc aag ggc cgc gac | | | 3989 |
| Val Lys Ser Pro Ala Val Leu His Leu Gln His Ser Lys Gly Arg Asp | | | |
| 1145 | 1150 | 1155 | |
| tac cgc gac aac acc gag ctc ccg cat cac ggc aag cac cgg ccg gag | | | 4037 |
| Tyr Arg Asp Asn Thr Glu Leu Pro His His Gly Lys His Arg Pro Glu | | | |
| 1160 | 1165 | 1170 | 1175 |
| gag ggg cca cca ggg cct cta ggc agg act gcc atg cag tga agccctcagt | | | 4089 |
| Glu Gly Pro Pro Gly Pro Leu Gly Arg Thr Ala Met Gln | | | |
| 1180 | 1185 | | |
| gagctgccac tgagtcggga gccagagga acggcgtgaa gccactggac cctctcccg | | | 4149 |
| gacctcctgc tggctcctcc tgcccagctt cctatgcaag gctttgtgtt ttcaggaaag | | | 4209 |
| ggcctagctt ctgtgtggcc cacagagttc actgcctgtg aggcttagca ccaagtgtgt | | | 4269 |
| aggctggaag aaaaacgcac accagacggg caacaaacag tctgggtccc cagctcgctc | | | 4329 |
| ttggtacttg ggaccccagt gcctcgttga gggcgccatt ctgaagaaag gaactgcagc | | | 4389 |
| gccgatttga ggggtggagat atagataata ataataataa taataataat ggccacatgg | | | 4449 |
| atcgaacact catgatgtgc caagtgtgt gctaagtgtt ttacgaacat tcgtcatatc | | | 4509 |
| aggatgacct cgagagctga ggctctagcc acctaaaaca cgtgcccaca cccaccagtt | | | 4569 |
| taaaacggtg tgtgttcgga ggggtgaaag cattaagaag ccagtgccc tcctggagtg | | | 4629 |
| agacaagggc tcggccttaa ggagctgaag agtctgggta gcttgtttag ggtacaagaa | | | 4689 |
| gcctgttctg tccagcttca gtgacacaag ctgcttttagc taaagtccc cgggttccgg | | | 4749 |
| catggctagg ctgagagcag ggatctacct ggcttctcag ttctttggtt ggaaggagca | | | 4809 |
| ggaaatcagc tcctattctc cagtggagag atctggcctc agcttgggct agagatgcca | | | 4869 |

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